Photocoagulation guided by wide-field fundus autofluorescence in eyes with asteroid hyalosis.

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Sir,

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Case

An 80-year-old man was followed-up up for the treatment of glaucoma at Kyoto University Hospital. He had type 2 diabetes and presented for yearly fundus examinations. On the basis of these findings, the patient was diagnosed with moderate non-proliferative (NPDR), although the presence of bilateral severe asteroid hyalosis prevented detailed observation (Figure 1a). In 2012, the right eye had exhibited signs of a small pre-retinal haemorrhage. Fluorescein angiography was performed and revealed bilateral neovascularisation (Figure 1b). The patient was treated with pan-retinal photocoagulation (PRP), but the resulting laser scars could not be assessed effectively by slit-lamp biomicroscopy due to the obstructing presence of the asteroid hyalosis. The laser scar did appear as an area of hyperfluorescence when imaged using wide-field fundus autofluorescence (FAF) (Figure 1c). The evidence provided by these FAF images allowed us to perform additional photocoagulation as necessary (Figure 1d).

Comment

Asteroid hyalosis is a benign vitreous disease with a minimal impact on visual function. Its prevalence among normal individuals is approximately 1%[1] and may be higher among diabetic patients. Clinicians sometimes feel stress in the observation of eyes with severe asteroid hyalosis because asteroid bodies are brightly shining on the microscopic light. A previous report referred that asteroid hyalosis was the cause of 8.5% of ungradable color photograph in the cohort.[2]

The results of examinations at our institution have shown that fluorescein angiography (FA) and optical coherence tomography (OCT) images are better suited than colour photography or indirect microscopy for imaging eyes with asteroid hyalosis. FA and OCT imaging utilise specific wavelengths of light and are less affected by asteroid hyalosis than are conventional imaging approaches such as colour photography or indirect microscopy, both of which utilise white light.[3, 4] The Optos 200TX (Optos PLC, Dunfermline, UK) used for autofluorescence imaging at our institution utilises green light with a wavelength of 532 nm and detects the emitted signal with a detector calibrated for detection at 570–780 nm. The use of a single wavelength may reduce reflection by asteroid bodies.

Wide-field FAF therefore represents a non-invasive tool with which to localize laser scars and thereby inform the practice of PRP. This tool will be extremely valuable in the treatment of individuals with proliferative diabetic retinopathy and severe asteroid hyalosis.

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3. Hwang JC, Barile GR, Schiff WM, Ober MD, Smith RT, Del Priore LV et al. Optical coherence tomography in asteroid hyalosis. *Retina* 2006;**26**(6):661-665.
4. Win PH, Young TA. Optos Panoramic200A fluorescein angiography for proliferative diabetic retinopathy with asteroid hyalosis. *Semin Ophthalmol* 2007;**22**(2):67-69.

Figure legends
Figure 1 (a) Wide-field colour photographs and (b) fluorescein angiography obtained prior to treatment. (c) Wide-field autofluorescence during pan-retinal photocoagulation. The red circle denotes the absence of the laser scar. (d) Wide-field autofluorescence after additional laser treatment.

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